

CLAIMS

We claim:

- 5 1. A method for conducting an operation including a power tool battery pack, the battery pack including a housing, a first cell supported by the housing and having a voltage, and a second cell supported by the housing and having a voltage, the battery pack being connectable to a power tool and being operable to supply power to operate the power tool, said method comprising the act of:
10 discharging one of the first cell and the second cell until the voltage of the one of the first cell and the second cell is substantially equal to the voltage of the other of the first cell and the second cell.
2. The method as set forth in Claim 1 and further comprising the acts of:
15 measuring the voltage of the first cell; and
 measuring the voltage of the second cell; and
 wherein the discharging act includes discharging the one of the first cell and the second cell having a higher voltage until the voltage of the one of the first cell and the second cell is substantially equal to the voltage of the other of the first cell and the
20 second cell.
3. The method as set forth in Claim 2 wherein one of the measuring acts provides the discharging act.
- 25 4. The method as set forth in Claim 3 wherein the measuring act associated with the one of the first cell and the second cell provides the discharging act.
5. The method as set forth in Claim 2 wherein the battery pack further includes a controller connected to the first cell and to the second cell, and wherein the
30 measuring acts include the act of determining the voltage with the controller.
6. The method as set forth in Claim 5 and further comprising the act of, after the measuring acts, determining, with the controller, on which of the first cell and the second cell to perform the discharging act.

7. The method as set forth in Claim 1 wherein the battery pack further includes at least one terminal connected to the first cell and to the second cell and operable to connect the battery pack to the power tool, and wherein said method further comprises
5 the act of discharging the first cell and the second cell to supply power through the terminal to power the power tool.

8. The method as set forth in Claim 1 and further comprising the act of charging the first cell and the second cell.
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9. The method as set forth in Claim 8 wherein the battery pack further includes at least one terminal connected to the first cell and to the second cell and operable to connect the battery pack to a battery charger, the battery charger being connectable to a power source and being operable to supply power to the battery pack, and wherein said
15 charging act includes the act of supplying power from the battery charger to the battery pack.

10. The method as set forth in Claim 1 wherein the battery pack further includes a third cell supported by the housing and having a voltage, and wherein said
20 method further comprises the act of discharging the third cell until the voltage of the third cell is substantially equal to the voltage of the other of the first cell and the second cell.

11. A battery pack for powering one of multiple power tools, the power tools including a driver drill and a circular saw, the battery pack comprising:

a housing selectively connectable to and supportable by the driver drill and the circular saw; and

5 a plurality of battery cells, the battery cells having a combined nominal voltage of approximately 28-volts.

12. The battery pack as set forth in Claim 11 wherein the battery cells have a lithium-based chemistry.

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13. The battery pack as set forth in Claim 12 wherein the battery cells have a lithium-manganese chemistry.

14. The battery pack as set forth in Claim 12 wherein the battery cells have a spinel chemistry.

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15. The battery pack as set forth in Claim 11 wherein the plurality of battery cells includes seven battery cells.

16. The battery pack as set forth in Claim 11 wherein each of the plurality of battery cells has a nominal voltage of approximately 4.2-volts.

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17. The battery pack as set forth in Claim 11 wherein each of the plurality of battery cells has ampere-hour capacity of approximately 3.0 ampere-hours.

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18. The battery pack as set forth in Claim 11 wherein the plurality of battery cells are capable of producing an average discharge current of approximately 20 amps.

19. An electrical combination comprising:
a driver drill;
a circular saw; and
a battery pack including
5 a housing selectively connectable to and supportable by the driver
drill and the circular saw, and
a plurality of battery cells, the battery cells having a combined
nominal voltage of approximately 28-volts.
- 10 20. The electrical combination as set forth in Claim 19 wherein the battery cells
have a lithium-based chemistry.
21. The electrical combination as set forth in Claim 20 wherein the battery cells
have a lithium-manganese chemistry.
- 15 22. The electrical combination as set forth in Claim 20 wherein the battery cells
have a spinel chemistry.
23. The electrical combination as set forth in Claim 19 wherein the plurality of
20 battery cells includes seven battery cells.
24. The electrical combination as set forth in Claim 19 wherein each of the
plurality of battery cells has a nominal voltage of approximately 4.2-volts.
- 25 25. The electrical combination as set forth in Claim 19 wherein each of the
plurality of battery cells has ampere-hour capacity of approximately 3.0 ampere-hours.
26. The electrical combination as set forth in Claim 19 wherein the driver-drill
and the circular saw are each capable of producing an average current draw of
30 approximately 20 amps.

27. The electrical combination as set forth in Claim 19 wherein the driver-drill includes

5 a driver-drill housing selectively connectable with the housing of the battery pack and operable to support the battery pack when connected, and a motor supported by the driver-drill housing and operable to drive a drill bit, the plurality of battery cells being electrically connectable to the motor to selectively operate the motor.

10 28. The electrical combination as set forth in Claim 19 wherein the circular saw includes

a saw housing selectively connectable with the housing of the battery pack and operable to support the battery pack when connected, and a motor supported by the saw housing and operable to drive a saw blade, 15 the plurality of battery cells being electrically connectable to the motor to selectively operate the motor.

29. An electrical combination comprising:
a driver drill capable of producing an average current draw of
approximately 20-amps;
a circular saw capable of producing an average current draw of
5 approximately 20-amps; and
a power tool battery pack operable to supply power to the driver drill and to
the circular saw, the battery pack including a plurality of battery cells, the plurality of
battery cells each having a lithium-based chemistry.

10 30. The electrical combination as set forth in Claim 29 wherein the battery cells
have a lithium-manganese chemistry.

31. The electrical combination as set forth in Claim 29 wherein the battery cells
have a lithium-manganese spinel chemistry.

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32. The electrical combination as set forth in Claim 29 wherein the plurality of
battery cells includes seven battery cells.

33. The electrical combination as set forth in Claim 29 wherein each of the
20 plurality of battery cells has a nominal voltage of approximately 4.2-volts.

34. The electrical combination as set forth in Claim 29 wherein each of the
plurality of battery cells has ampere-hour capacity of approximately 3.0 ampere-hours.

25 35. The electrical combination as set forth in Claim 29 wherein the driver-drill
includes

a driver-drill housing selectively connectable with the housing of the
battery pack and operable to support the battery pack when connected, and

a motor supported by the driver-drill housing and operable to drive a drill
30 bit, the plurality of battery cells being electrically connectable to the motor to selectively
operate the motor.

36. The electrical combination as set forth in Claim 29 wherein the circular saw includes

a saw housing selectively connectable with the housing of the battery pack and operable to support the battery pack when connected, and

5 a motor supported by the saw housing and operable to drive a saw blade, the plurality of battery cells being electrically connectable to the motor to selectively operate the motor.

37. The electrical combination as set forth in Claim 29 wherein the battery pack
10 includes a housing selectively connectable to and supportable by the driver drill and the circular saw, and wherein the plurality of battery cells have a combined nominal voltage of approximately 28-volts.

38. A battery pack for powering one of multiple power tools, the power tools including a driver drill and a circular saw, the battery pack comprising:

a housing selectively connectable to and supportable by the driver drill and the circular saw; and

5 a plurality of battery cells having a combined ampere-hour capacity of approximately 3.0 ampere-hours, the plurality of battery cells each having a lithium-based chemistry.

39. The battery pack as set forth in Claim 38 wherein the battery cells have a
10 lithium-manganese chemistry.

40. The battery pack as set forth in Claim 38 wherein the battery cells have a lithium-manganese spinel chemistry.

15 41. The battery pack as set forth in Claim 38 wherein the plurality of battery cells includes seven battery cells.

42. The battery pack as set forth in Claim 38 wherein each of the plurality of battery cells has a nominal voltage of approximately 4.2-volts.

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43. The battery pack as set forth in Claim 38 wherein the plurality of battery cells are capable of producing an average discharge current of approximately 20 amps.

44. The battery pack as set forth in Claim 29 wherein the plurality of battery
25 cells have a combined nominal voltage of approximately 28-volts.

45. A battery pack for powering one of multiple power tools, the power tools including a driver drill and a circular saw, the battery pack comprising:

a housing selectively connectable to and supportable by the driver drill and the circular saw; and

5 a plurality of battery cells capable of producing an average discharge current of approximately 20-amps, the plurality of battery cells each having a lithium-based chemistry.

46. The battery pack as set forth in Claim 45 wherein the battery cells have a
10 lithium-manganese chemistry.

47. The battery pack as set forth in Claim 45 wherein the battery cells have a spinel chemistry.

15 48. The battery pack as set forth in Claim 45 wherein the plurality of battery cells includes seven battery cells.

49. The battery pack as set forth in Claim 45 wherein each of the plurality of battery cells has a nominal voltage of approximately 4.2-volts.

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50. The battery pack as set forth in Claim 45 wherein the plurality of battery cells having a combined ampere-hour capacity of approximately 3.0 ampere-hours.

51. The battery pack as set forth in Claim 45 wherein the plurality of battery
25 cells have a combined nominal voltage of approximately 28-volts.